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Contribution of Cardiac MRI to Early Evaluation and 3-month Follow-up in Acute Myocarditis. A 27-cases Prospective Study

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Acute myocarditis (AM) diagnosis is a challenge based on the association of clinical and para-clinical criteria. AM can favour the evolution towards dilated cardiomyopathy. Three months after the acute episode, re-evaluation including cardiac MRI attempts to identify patients at risk for unfavourable evolution. This use of MRI has rarely been investigated in AM prognosis stratification.

Method and results: we report a prospective series of 27 consecutive patients hospitalized for AM : 24 men, 3 women, 34 years old on average. Physical examination found no sign of heart failure. All patients presented with biological inflammatory syndrome and troponine I elevation. Echocardiography showed moderate global left ventricular dysfunction in 6 cases. There were segmental wall motion abnormalities in 18 patients. Cardiac MRI performed early after admission never showed myocardial first-pass perfusion defect after gadolinium injection. There were subepicardial delayed-enhancement (DE) areas in 25 cases. Holter monitoring did not show any rhythm trouble. Angiography revealed normal coronary arteries.

Three months after all the patients were examined again. None were symptomatic. Echocardiography and biological check-up were normal. Cardiac MRI showed the persistence of DE in 14 patients without wall motion abnormality in the affected segments. Holter monitoring remained normal.

Conclusions: at the time of admission, the absence of early perfusion defect after gadolinium injection and the subepicardial localization of the DE constitute reliable criteria in favour of AM diagnosis, allowing to rule out an acute coronary syndrome. Furthermore the existence of a DE allows to assess the localization and the extension of the inflammation in a non-invasive way. During the follow-up the persistence of a DE does not allow any prognosis stratification and is not associated with any clinical and para-clinical disorders. However the persistence of a DE encourages a more rigorous follow-up.

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Prevalence, characteristics and outcomes of patients presenting with cardiogenic unilateral pulmonary edema

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Background: Cardiogenic unilateral pulmonary oedema (UPE) is rare and often misdiagnosed. The aim of our study was to determine the prevalence of UPE; the clinical characteristics and the outcomes of this particular form of cardiogenic pulmonary oedema.

Methods: A retrospective study that enrolled all consecutive patients admitted in the two intensive care units of a French University Hospital for cardiogenic pulmonary oedema from January 2000 to may 2008.

Results: 869 consecutive patients (475 men, 394 women; mean age 75.4 +/- 13.0 were hospitalized during this period. Among this population, 18 patients (10 men, 8 women; mean age 76.4 +/- 12.9, range 46 to 94 years) presented with radiological features of unilateral pulmonary edema resulting in a prevalence of 2%. UPE was right-sided in 16 cases and left-sided in 2. UPE was associated in all cases with a severe mitral regurgitation (MR). 53 additional patients presented a bilateral pulmonary edema (BPE) associated with severe MR. Clinical and echocardiographic features were similar between patients with UPE or BPE due to severe MR. However, patients with UPE required significantly more use of non-invasive or invasive ventilation (p= 0.008) and catecholamines (p = 0.01) than patients with classical BPE due to severe MR. Use of antibiotherapy was significantly higher in patients with UPE than in patients with BPE associated with severe MR (11/18 Vs 3/53, $p < 0.0001$). Mortality was significantly higher in patients with UPE (39%) than in patients with BPE (6%) due to severe MR in univariate analysis [OR=10.6, (95% CI : 2.4 – 47), p=0.0021] and in multivariate analysis [OR=8.4, (95% CI : 1.5 – 47), p=0.015].

Conclusion: In our study, unilateral pulmonary oedema represents 2% of all cardiogenic pulmonary edema and usually appears as an opacity involving the right upper lobe. Because of the risk of misdiagnosis (pneumonia, neoplasm), UPE has to be known to avoid delays in treatment that may affect prognosis.

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Echocardiographic evaluation of left and right ventricular functions in familial amyloidosis polyneuropathy: preserved or not?

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Familial amyloidosis polyneuropathy (FAP) is an inherited disease caused by mutated transthyretin, with neuropathy, conduction disorders, and cardiac denervation. Orthotopic liver transplantation is the only treatment improving prognosis. Pre operative cardiac evaluation is important.

The aim of the study is to assess LV and RV systolic functions in 32 consecutive patients prospectively included between January 2007 and August 2008, compared to 36 healthy controls.

LV global systolic function (ejection fraction, tei index, MAPSE) was normal in all subjects but significantly lower in patients. Cardiac index was higher in controls (p = 0,02). LV regional systolic function analysed by peak systolic velocity at TDI at the 4 walls, showed an impairement in FAP patients (p<0,0001). Elevated LV living pressure defined as E/Em>10, was more frequent in FAP (p<0,0001).

FAP patients presented with significantly lower RV systolic function (TAPSE, systolic peak at tricuspid annulus). Elevated RV filling pressure defined as E/Et>6 was more frequent in patients (p=0,001).

Although the LV and RV systolic function is classically preserved at FAP, this study shows that it is significantly decreased compared to controls, with an early regional systolic dysfunction. Echocardiographic evaluation allows early detection of restrictive cardiopathy.

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Latent obstruction elicits a rapid proteolysis of von Willebrand factor in patients with hypertrophic cardiomyopathy. A rest and exercise echocardiographic study

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Background: Latent obstruction in hypertrophic cardiomyopathy (HCM) have clinical and prognostic consequences. Baseline obstruction impairs hemostatic properties of von Willebrand factor (VWF) in HCM.

Objectives: We sought to assess the acute effect of exercise-induced obstruction on VWF in patients with latent obstruction, and the determinants of obstruction and VWF impairment.

Methods: A comprehensive echocardiography was performed at rest and during exercise in 32 patients with HCM. Sixteen patients (44±16 years) with latent obstruction (baseline peak gradient < 30 mmHg and exercise peak gradient≥30 mmHg) were matched with 16 patients without obstruction. Maximal peak gradient was recorded; the type and duration of obstruction during exercise were characterized by an obstruction score. Blood was sampled before and after exercise.

Results: Baseline median [25-75th percentiles] peak gradient was 8[6-11] mmHg, and rose up to 32[17-104] mmHg with exercise. Baseline predictors of exercise-induced obstruction (R_ of the model 0.66) were incomplete SAM (r=0.76, p<0.0001) and mitral S velocity (r=0.34, p=0.004). At rest, VWF function was modestly impaired in patients with latent obstruction. VWF-col-